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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/677,363	10/02/2000	Scott B. Swaney	POU920000162US1	6279

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Philmore H. Colburn II
CANTOR COLBURN LLP
55 Griffin Road South
Bloomfield, CT 06002

EXAMINER

GERSTL, SHANE F

ART UNIT	PAPER NUMBER
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2183

DATE MAILED: 02/27/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/677,363

Applicant(s)

SWANEY ET AL.

Examiner

Shane F Gerstl

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 December 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) 8 and 19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 9-18, and 20-22 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.
- a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. Claims 1-7, 9-18, and 20-22 have been examined.
2. Claims 8 and 19 have been withdrawn from consideration in response to Applicant's cancellation thereof:

Papers Received

3. Receipt is acknowledged of amendment paper submitted, where the paper has been placed of record in the file. .

Claim Objections

4. Claims 1 and 12 are objected to because of the following informalities: the phrase "...updated during a operand prefetching period..." is of improper grammatical form. The Office is taking the phrase to mean "...updated during an operand prefetching period..." in order to reflect the proper article "an".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1-3, 5-7, 9-10, 12-14, 16-18, and 20-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Edmondson (5,471,591).
7. In regard to claim 1, Edmondson discloses a method for holding up operands of R-unit registers for a minimum number of cycles until all prior updates have completed

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by comparing addresses of R-unit registers in at least one queue and interlocking valid matches of said R-unit register addresses, the method comprising:

- a. receiving a plurality of R-unit register addresses; Note column 4, line 29, where Edmondson mentions register specifiers. One of ordinary skill in the art would recognize these specifiers to be an address of sorts because it points to a specific register.
- b. storing said R-unit register addresses in a plurality of queues; Note that in column 4, lines 24-25, Edmondson stores his register (source and destination) specifiers (addresses) in queues.
- c. accessing said queues; Note in column 4, lines 40-41, that Edmondson inspects said queues. It is well known in the art that in order to inspect a queue it must be accessed.
- d. comparing said R-unit register addresses; Note in column 5, lines 9-12, that Edmondson compares a register destination specifier to a register source specifier. It has already been shown that specifier means an address.
- e. determining matches between R-unit register addresses; In column 5, lines 40-41, Edmonson discloses that the comparators indicate a match. It has already been shown above that the comparators compare register addresses.
- f. implementing one or more write-before-read interlocks after said determining produces a valid match, said one or more write-before-read interlocks being implemented until said comparing is no longer active, whereby operands of R-unit registers are updated during a operand prefetching period with a

minimum number of cycles. In column 5, lines 40-41 Edmondson shows that if there is a match, the current instruction is stalled. It is well known to one of ordinary skill in the art that this stall is in fact an interlock. Column 4, lines 37-42 show the case when the register operands are found to match due to a read-after-write (same as a write-before-read) conflict, causing a read-after-write stall. Column 4, lines 9-19 show that the stall is implemented until the previous instruction (the write instruction) completes execution, and thus writes to the register that will be read. Once the write instruction completes, there is no longer a write address since the write has been completed. Thus the comparing is no longer active since there is nothing to compare. Therefore, the interlock is implemented until said comparing is no longer active. The ending section of the claim that states "whereby operands of..." is known as a whereby clause. Since this section merely states the result of the previous limitations and is not necessitated by the rest of the claim, the section does not limit the scope of the claim and will not be given patentable weight. See MPEP 2106.

8. In regard to claim 12, Edmondson discloses a system for holding up R-unit operands for a minimum number of cycles until all prior updates have completed by comparing R-unit register addresses in at least one queue and interlocking valid R-unit register address matches, the system comprising:

- a. a plurality of queues for storing R-unit register addresses (Figure 7, elements 37 and 38);

- b. a comparator for comparing said R-unit register addresses in said plurality of queues and determining matches between R-unit register addresses (Figure 18, element 641); and
- c. a plurality of write-before-read interlocks that are implemented after valid matches of said R-unit registers are determined, said write-before-read interlocks being implemented until said comparing is no longer active, whereby operands of R-unit registers are updated during a operand prefetching period with a minimum number of cycles. In column 5, lines 40-41 Edmondson shows that if there is a match, the current instruction is stalled. It is well known to one of ordinary skill in the art that this stall is in fact an interlock. Column 4, lines 37-42 show the case when the register operands are found to match due to a read-after-write (same as a write-before-read) conflict, causing a read-after write stall. Column 4, lines 9-19 show that the stall is implemented until the previous instruction (the write instruction) completes execution, and thus writes to the register that will be read. Once the write instruction completes, there is no longer a write address since the write has been completed. Thus the comparing is no longer active since there is nothing to compare. Therefore, the interlock is implemented until said comparing is no longer active. The ending section of the claim that states "whereby operands of..." is known as a whereby clause. Since this section merely states the result of the previous limitations and is not necessitated by

the rest of the claim, the section does not limit the scope of the claim and will not be given patentable weight. See MPEP 2106.

9. The rejections to claims 2-3, 5-7, 9-10, 13-14, 16, and 20-21 are respectfully maintained and incorporated by reference as set forth in the last office action since no new limitations have been entered into these claims.

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. Claims 4, 11, 15, 17, 18, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edmondson in view of Hennessy.

12. The rejections to claims 4, 11, 15, 17, 18, and 22 are respectfully maintained and incorporated by reference as set forth in the last office action since no new limitations have been entered into these claims.

Response to Arguments

13. Applicant's arguments filed on December 11, 2003 have been fully considered but they are not persuasive. The arguments against the Edmondson reference merely state in effect that the reference does not meet the disclosed claims. In 37 CFR 1.111

(b) it is stated that, "The reply must present arguments pointing out the specific distinctions believed to render the claims, including any newly presented claims, patentable over any applied references." The arguments do not show with any

persuasion how the claims are patentable over the reference. Further, the Office shown that the Edmondson reference does indeed meet all of the claim limitations including the amended limitations as described above.

Conclusion

14. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shane F Gerstl whose telephone number is (703)305-7305. The examiner can normally be reached on M-F 6:45-4:15 (First Friday Off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Chan can be reached on (703)305-9712. The fax phone number for the organization where this application or proceeding is assigned is (703)872-9306.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

Shane F Gerstl
Examiner
Art Unit 2183

SFG
February 19, 2004



EDDIE CHAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100